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EXAMINER
BOYER, RANDY

ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
12/07/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/539,058	MONTANARI ET AL.	
	Examiner	Art Unit	
	RANDY BOYER	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2009 and 08 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36,39 and 40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,16,36,39,40 and 1719* is/are rejected.

7)☒ Claim(s) *12-15 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *16 April 2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Examiner acknowledges Applicant's response filed 3 August 2009 and 8 September 2009 containing amendments to the claims and remarks.

2. Claims 1-36, 39, and 40 are pending. Claims 39 and 40 are newly added.

3. Applicant's amendments to claims 3-5 are sufficient to overcome the previous objections.

4. The previous rejections of claims 1, 4, 10, 11, 16, 17, 21-24, and 29-32 under 35 U.S.C. 102(b) are maintained. The previous rejections of claims 1, 4, 10, 11, 16, 17, 21-24, and 29-32 under 35 U.S.C. 103(a) are withdrawn.

5. The remaining previous rejections under 35 U.S.C. 103(a) are maintained. Likewise, newly added claims 39 and 40 are rejected under 35 U.S.C. 103(a). The rejections follow.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 4, 10, 11, 16, 17, 21-24, and 28-32 are rejected under 35 U.S.C. 102(b) as anticipated by Nolley (US 4,124,486).

8. With respect to claim 1, Nolley discloses a process comprising: (a) mixing at least part of a heavy feedstock (1) and/or at least most of the stream containing asphaltenes (31) obtained in a deasphalting unit (17) with a suitable hydrogenation catalyst (see Nolley, column 6, lines 13-34) and sending the mixture obtained to a hydrotreatment reactor (7) into which into which hydrogen (3, 6) is charged (see Nolley, column 6, lines 34-36); (b) sending the hydrotreatment reaction product (8) to one or more flash steps (12, 27) whereby the different fractions coming from the hydrotreatment reaction are separated; and (c) recycling at least part of the liquid (14, 20) leaving the flash unit (12, 27) to the deasphalting zone (17) in the presence of solvents and obtaining two streams therefrom, one consisting of deasphalted oil (18) and the other (29) containing asphaltenes; wherein the stream containing asphaltenes (29) coming from the deasphalting unit (17) is sent to a treatment section (30) with a suitable solvent for the separation of the product into a solid fraction (31) and a liquid fraction (2, 19) from which the solvent can be subsequently removed.

9. With respect to claim 4, Nolley discloses wherein at least part (2) of the liquid fraction is recycled to the hydrotreatment reactor (7).

10. With respect to claims 10 and 11, Nolley discloses wherein all the heavy feedstock (1) is mixed with a suitable hydrogenation catalyst (see Nolley, column 6, lines 34-36) and sent to the hydrotreatment reactor (7), whereas at least 80% (2) of the

stream containing asphaltenes (31) is recycled to the hydrotreatment zone (7) (see Nolley, column 10, lines 14-18).

11. With respect to claims 16 and 17, Nolley discloses wherein the entire flash separation residue (14) is recycled to the deasphalting zone (17).

12. With respect to claims 21 and 22, Nolley discloses wherein the hydrotreatment step is carried out at a temperature ranging from 550°F to 1000°F (about 288°C to 538°C) and a pressure ranging from 500 psi to 4000 psi (about 3.4 MPa to 27.6 MPa) (see Nolley, column 6, lines 34-52).

13. With respect to claim 23, Nolley discloses wherein the deasphalting step is carried out at a temperature ranging from 50°F to 600°F (about 10°C to 315°C) and a pressure ranging from 100 psi to 1000 psi (about 0.7 MPa to 6.9 MPa) (see Nolley, column 6, lines 1-6).

14. With respect to claim 24, Nolley discloses wherein the deasphalting solvent is a light paraffin having 3 to 5 carbon atoms (see Nolley, column 5, lines 44-51).

15. With respect to claims 28-31, Nolley discloses wherein molybdenum catalyst may be used in an amount ranging from 1% to 25% by weight (see Nolley, column 6, lines 13-33 and 40-44).

16. With respect to claim 32, Nolley discloses wherein the stream (8) containing hydrotreatment reaction product is subjected to a high pressure separation pre-step (9) to obtain a light fraction (21) and a heavy fraction (11), the heavy fraction (11) alone being sent to the flash separation step (12).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

19. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

20. Claims 1-3, 5-9, 16, 17, 19-36, 39, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor (US 5,124,026). Alternatively, claims 1-3, 5-9, 16,

17, 19-36, 39, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor (US 5,124,026), as evidenced by Nolley (US 4,124,486), Coleman (US 3,816,295), and Yan (US 4,334,976).

21. With respect to claims 1 and 2, Taylor discloses a process comprising: (a) contacting at least part of a heavy feedstock (58) with a suitable hydrogenation catalyst (see Taylor, column 7, lines 57-66) and sending the mixture obtained to a hydrotreatment reactor (60) into which into which hydrogen is charged (see Taylor, column 7, lines 57-66); (b) separating the hydrotreatment reaction product into different fractions (62, 64, 66, 68, 70, 78); and (c) recycling at least part of the liquid fraction (80) to the deasphalting zone (88) in the presence of solvents and obtaining two streams therefrom, one consisting of deasphalted oil (92, 116) and the other (94, 118) containing asphaltenes; wherein the stream containing asphaltenes (94) coming from the deasphalting unit (88) is sent to a treatment section with a suitable solvent for the separation of the product into a solid fraction and a liquid fraction from which the solvent can be subsequently removed (see Taylor, column 11, lines 12-16).

Taylor does not disclose the hydroconversion catalysts are mixed with the heavy feedstock and used in a slurry phase operation.

However, Taylor discloses wherein the hydrotreatment reactor is operated as an ebullated bed which is an art-recognized substitute hydrotreatment means for slurry phase operations (see e.g., Nolley (US 4,124,486), column 6, lines 13-16; and Coleman (US 3,816,295), column 3, lines 29-30).

Therefore, Examiner finds Applicant's claim 1 unpatentable over the disclosure of Taylor. See MPEP §§ 2144.06 and 2144.07.

22. With respect to claim 3, Taylor discloses wherein at least part of the asphaltene stream may be separated from the solvent and used as fuel (see Taylor, column 11, lines 12-16).

23. With respect to claims 5, 6, and 24, Taylor discloses the use of butane and/or pentane as solvent (see Taylor, column 10, lines 33-34) which are art-recognized substitutes for xylene solvent (see e.g., Yan (US 4,334,976), column 3, lines 67-68; and column 4, lines 1-10).

24. With respect to claims 7-9, Taylor discloses the use of variable solvent ratios (see Taylor, column 10, lines 33-39 and 62-66).

25. With respect to claims 16 and 17, Taylor discloses wherein a "substantial portion" (80) of the separation residue stream (72) is recycled to the deasphalting unit (88) (see Taylor, column 8, lines 52-56).

26. With respect to claims 19 and 20, Taylor discloses wherein the separation is effected at a suitable pressure so as to obtain light gases, naphtha, distillate, gas oil, and resid as individual fractions (see Taylor, Fig. 1 and accompanying text).

27. With respect to claims 21 and 22, Taylor discloses wherein typical hydrotreating conditions include a temperature in the range of 650°F to 750°F (about 343°C to 399°C) and a pressure in the range of 1000 psi to 1800 psi (about 6.9 MPa to 12.4 MPa) (see Taylor, column 9, lines 25-30).

28. With respect to claims 23 and 25, Taylor discloses wherein the deasphalting step is carried out under supercritical conditions with one or more steps and a temperature in the range of 150°F to 512°F (about 65°C to 266°C) (depending on the solvent used) (see Taylor, column 11, lines 21-28; and column 10, lines 15-24) and a pressure in the range of 395 psi to 530 psi (about 2.7 MPa to 3.6 MPa) (see Taylor, column 10, lines 15-24).

29. With respect to claims 26 and 27, Taylor discloses wherein the stream consisting of deasphalted oil (92) is separated into various fractions (see Taylor, Fig. 1 and accompanying text).

30. With respect to claims 28-31, Taylor discloses the use of a hydrotreating catalyst typically comprising a hydrogenating component dispersed on a porous refractory inorganic oxide support (see Taylor, column 8, lines 13-15). Taylor is not otherwise limited with respect to the specific catalyst used. In this regard, Examiner notes that the use of molybdenum catalysts is common in the art for the conversion of heavy asphalthenic feedstocks (see e.g., Nolley (US 4,124,486), column 6, lines 13-33; and column 6, lines 40-44).

31. With respect to claims 32-34, Taylor discloses wherein the hydrotreatment reaction products may be separated into a light fraction and a heavy fraction, with the heavy fraction being sent for further processing and subsequent separation; and wherein the light fraction may be sent to a post-treatment hydrogenation section (74), producing a lighter gas fraction and a heavier fraction containing hydrotreated naphtha and gas oil (see Taylor, Fig. 1 and accompanying text); and wherein the post-treatment

hydrogenation reaction is effected at a pressure in the range of about 1000 psi to about 1800 psi (about 6.9 MPa to 12.4 MPa) (see Taylor, column 9, lines 20-32).

32. With respect to claims 35 and 36, Coleman discloses wherein slurry catalyst systems are art-recognized substitutes for the ebullated bed system used in Taylor (see Coleman (US 3,816,295), column 3, lines 29-30); and Nolley discloses the recovery and recycle of hydrotreating catalyst in a slurry catalyst system (see Nolley (US 4,124,486), column 6, lines 29-33).

33. With respect to claim 39, Taylor suggests taking the asphaltene fraction from the deasphalting section and contacting with a solvent so as to effect a separation of a solid fraction and a liquid fraction (see Taylor, column 11, lines 12-16).

34. With respect to claim 40, the separation and recycling of a process component for reuse is well known in the art. Moreover, the skilled person would have been motivated to provide for such process modification in order to provide a more efficient process.

Allowable Subject Matter

35. Claims 12-15 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

36. Claims 12-15 and 18 are indicated allowable for the reasons indicated in the previous Office Action mailed 3 February 2009.

Response to Arguments

37. Applicant's arguments filed 3 August 2009 have been fully considered but they are not persuasive.

38. Examiner understands Applicant's arguments to be:

I. Section 30 of Nolley is not a treatment section, but rather a solvent flash zone used to separate the solvent contained in stream 29 coming from deasphalting tower 17.

II. Taylor fails to add solvent in a treatment section with the flushing stream, and thus cannot and does not provide a process as claimed for the separation of the product of the treatment section into a solid fraction and a liquid fraction from which the solvent can be removed.

39. With respect to Applicant's first argument, such argument fails to comply with 37 CFR 1.111(b) because it amounts to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the *claims* patentably distinguishes them from the references.

Applicant has not convincingly explained why section 30 of Nolley is not a "treatment section" as provided for in Applicant's claims. Looking to the plain language of the claim, Applicant's "treatment section" provides "for *separation* of the product into a solid fraction and a liquid fraction from which said solvent can be subsequently removed" (emphasis added) (see Applicant's claim 1). Examiner notes that section 30 of Nolley accomplishes all of the intended functions of the "treatment section" of Applicant's claims.

40. With respect to Applicant's second argument, such argument fails to comply with 37 CFR 1.111(b) because it amounts to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the *claims* patentably distinguishes them from the references.

Taylor clearly suggests taking the asphaltene fraction from the deasphalting section and contacting with a solvent so as to effect a separation of a solid fraction and a liquid fraction (see Taylor, column 11, lines 12-16).

Conclusion

41. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-

7113. The examiner can normally be reached Monday through Friday from 10:00 A.M. to 7:00 P.M. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Randy Boyer/

Examiner, Art Unit 1797

/Glenn A Caldarola/

Acting SPE of Art Unit 1797